

system's combined filtered water at each plant must at no time exceed 1 NTU. Turbidity exceedances were reported at both the O.B. Curtis and J.H. Fewell WTPs in the January 2020 monthly operating report ("MOR"). Finished water turbidity reached 1.35 NTU at the O.B. Curtis WTP and 3.00 NTU at the J.H. Fewell WTP. Additionally, at the O.B. Curtis WTP, 93.5% of turbidity samples were equal to or less than the turbidity limit of 0.3 NTU. The EPA's inspectors observed that the continuous turbidity monitoring equipment at the O.B. Curtis WTP has read inaccurately for approximately three years due to a lack of calibration and maintenance, and that turbidity samples were taken during this time period at a frequency of once per shift, for a total of three times per day. Given that the turbidity monitoring equipment was not operational, the system, to maintain compliance with NDPRWs, should have conducted grab sampling every four hours in lieu of continuous monitoring, but for no more than five working days following the nonoperation of the equipment.

- h. UV disinfection devices were found to be offline for significant periods of time at both the O.B. Curtis and J.H. Fewell WTPs. UV disinfection devices are to be operated continuously. In its January 2020 MOR, Respondent reported the following:
 - i. At the J.H. Fewell WTP:
 - UV Reactor 1 was offline for the entire month of January 2020 (and had been offline since October 16, 2019);
 - UV Reactor 2 was offline for 15 of 31 days;
 - UV Reactor 3 was offline for 17 of 31 days; and
 - UV Reactor 4 was offline for 17 of 31 days.
 - ii. At the O.B. Curtis WTP:
 - UV Reactor 1 was offline for two of 31 days;
 - UV Reactor 2 was offline for four of 31 days;
 - UV Reactor 3 was offline for one of 31 days;
 - UV Reactor 4 was offline for three of 31 days; and
 - UV Reactor 5 was offline for 10 of 31 days.

23. MSDH provided the EPA with a list of all Boil Water Notices ("BWNs") issued between January 2, 2016 and February 1, 2020, to provide notice to the public of the potential to have serious adverse effects on human health as a result of short-term exposure pursuant to 40 C.F.R. § 141.202. The majority of the BWNs issued were due to loss of pressure from leaks and/or line breaks. Low-pressure and loss of pressure in a drinking water distribution system may cause a net movement of water from outside the pipe to the inside through cracks, breaks, or joints in the distribution system. Crack, breaks and joints are common in all water systems. Backsiphonage occurs when pressure is lost in pipes creating a negative pressure and a partial vacuum that pulls water from a contaminated source outside the pipe into the treated, potable water inside the pipe. This creates a suitable environment for bacteriological contamination and other disease-causing organisms, including *E. coli*, to enter the water distribution system downstream of the WTPs, which is then delivered to users.

24. High levels of turbidity increase the likelihood that drinking water may contain disease-causing organisms, such as *Cryptosporidium*, *Giardia*, *Legionella*, and *E. coli* because particles of turbidity provide shelter for microbes and reduce the microbes' exposure to disinfectants. If particulate material is not removed, a high turbidity event can provide shelter for and promote regrowth of pathogens in the water, leading to an outbreak of waterborne diseases.
25. Pathogens, such as *Giardia*, *Cryptosporidium*, and *Legionella*, are often found in water. If consumed, these pathogens can cause gastrointestinal illness (e.g., diarrhea, vomiting, cramps) and other health problems. These illnesses may be severe and sometimes fatal for people with weakened immune systems. *Cryptosporidium* is a significant concern in drinking water because it is resistant to chlorine and other disinfectants.
26. *E. coli* are bacteria, that when present, indicate the water may have been contaminated with human and/or animal wastes. Human and/or animal wastes may contain pathogens that can cause short-term health impacts, such as diarrhea, cramps, nausea, headaches, or other symptoms. Pathogens may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.

MSDH Actions and the EPA's Coordination with MSDH

27. MSDH has pursued informal enforcement actions against Respondent for Lead and Copper Rule ("LCR") treatment technique violations and Long-Term Enhanced Surface Water Treatment Rule violations due to turbidity exceedances. Additionally, MSDH issued a compliance plan to Respondent on February 12, 2016, to address the LCR violations that occurred starting in June 2015. However, these actions have not been effective in adequately protecting the health of the System's users with respect to the findings above.
28. EPA consulted with the City of Jackson and MSDH, to the extent practicable in light of the imminent endangerment, to confirm the correctness of the information on which this Order is based and to ascertain the action which such authorities were or would be taking.
29. Based on the findings above, the EPA has determined that the System has numerous SDWA violations, including violations of the NPDWRs.
30. Based on the findings above, and despite actions taken by MSDH, the local authorities have not undertaken all actions necessary to protect the public health and conditions exist at the System that may present an imminent and substantial endangerment to the health of persons served by the System. On February 28, 2020, MSDH submitted a written request for the EPA to assist with addressing the System's SDWA noncompliance. Therefore, this Order is necessary to protect human health.
31. The EPA has therefore determined that the actions specified in this Order are necessary to protect the health of persons.

III. ORDER

Based on the foregoing findings and conclusions, and pursuant to Section 1431 of the Act, 42 U.S.C. § 300i, it is ordered:

Intent to Comply

32. Within 72 hours of receipt of this Order, Respondent must notify the EPA in writing of its intent to comply with the terms of this Order. To satisfy this requirement, Respondent shall email the EPA point of contact identified below in Paragraph 44.

Public Notification

33. Effective immediately upon the Effective Date of this Order, Respondent shall carry out the public notice requirements as required by 40 C.F.R. Part 141, Subpart Q for all future violations of NPDWRs. Additionally, Respondent must treat any exceedances of maximum allowable turbidity levels and breaks in water lines or other low pressure or loss of pressure events likely to cause contamination in the System's distribution system as requiring Tier 1 public notification as required by 40 C.F.R. § 141.202 until notified by the EPA that this is no longer necessary.

Treatment and Distribution System Management

34. Notwithstanding the requirements of this Order, Respondent shall continue to implement all applicable monitoring and reporting requirements of the SDWA and NPDWRs in accordance with 40 C.F.R. Part 141.
35. Dosing Process Repair. Within one week of the Effective Date of this Order, Respondent shall fix dosing process for disinfection and pH control.
36. Repair and/or Replacement of Equipment.
- a. Within one week of the Effective Date of this Order, Respondent shall provide to the EPA and MSDH a status of all monitoring equipment and appurtenant treatment equipment (including, but not limited to, pH meters, flow measurement devices, turbidimeters, SCDs, chlorine analyzers, raw water screens, UV reactors, automatic sludge removal system, membrane filtration treatment train flocculator motors, membrane integrity testing system, and filters). This must include, at a minimum, descriptions of the conditions of the equipment, identify in which facility this equipment is located, any needed repairs, and status of calibration.
 - b. Within 30 days of the Effective Date of this Order, Respondent shall submit a comprehensive plan, including a schedule of implementation, for the EPA's review and approval, to repair and/or replace monitoring equipment and repair, replace, and/or perform maintenance on the appurtenant treatment equipment to ensure the System has the appropriate treatment equipment and appropriate information to make treatment decisions, and that the water quality is properly measured for compliance with the NPDWRs. All future MORs and weekly data, as required pursuant to Paragraph 43(43.a), shall include the date of last calibration and any repairs and/or replacement of monitoring equipment done since the last report was provided, until further notice by the EPA.

- c. Until such time as the monitoring equipment has been repaired and/or replaced and properly maintained, Respondent shall conduct monitoring by collecting grab samples every four hours in lieu of the continuous monitoring. For any instance where grab sampling is conducted in lieu of the required continuous monitoring, Respondent shall identify this deviation in the weekly MORs provided in accordance with Paragraph 43(43.a) of this Order.

37. CFE Turbidity Exceedance Events.

- a. In the event of CFE turbidity measurements exceeding 1.0 NTU, Respondent shall implement the following:
 - i. Comply with all requirements of NPDWRs, including 40 C.F.R. §§ 141.170 – 141.175.
 - ii. Notify the EPA and MSDH within 24 hours. If cause of the exceedance is known, include this information with notice. However, do not hold or delay the notification in instances where the cause of the exceedance is not known.
 - iii. Consult with MSDH on the exceedance and the appropriate BWN.
 - iv. Respondent shall issue a Tier 1 public notice as required by 40 C.F.R. § 141.202.
 - v. Within 24 hours after the CFE turbidity is less than 0.3 NTU, Respondent shall collect consecutive daily (one sample per calendar day) special purpose samples (bacteriological and microbial) (defined in 40 C.F.R. § 141.21(a)(6)) from the entry point to the distribution system of the treatment plant that had the turbidity exceedance, as well as any other distribution sampling location deemed necessary as identified by MSDH. Respondent shall ensure that each sample is analyzed for total coliform, *E. coli* (if sample is total coliform positive), and chlorine residual.
 - vi. Provide the EPA with chlorine residual results as measured at the entry point to the System and in the System's distribution for 10 calendar days preceding and following the event.
- b. In the event of CFE turbidity measurements exceeding 2.0 NTU, Respondent shall implement the following:
 - i. Comply with all requirements of NPDWRs, including 40 C.F.R. §§ 141.170 – 141.175.
 - ii. Immediately issue an appropriate BWN, provide notice and consult with MSDH within 24 hours, and provide notice to the EPA within 24 hours.
 - iii. Respondent shall issue a Tier 1 public notice as required by 40 C.F.R. § 141.202.
 - iv. Within 24 hours after the CFE turbidity is less than 0.3 NTU, the System shall collect consecutive daily (one sample per calendar day) special purpose samples (bacteriological and microbial) (defined in 40 C.F.R. § 141.21(a)(6)) from the entry point to the distribution system of the treatment plant that had the turbidity

exceedance as well as any other distribution sampling location deemed necessary, as identified by MSDH. Respondent shall ensure that each sample is analyzed for total coliform, *E. coli* (if sample is total coliform positive), and chlorine residual.

- v. Provide the EPA with chlorine residual results as measured at the entry point to the System and in the System's distribution for 10 calendar days preceding and following the event.
 - vi. Respondent shall provide the EPA and MSDH a self-assessment evaluation of CFE and IFE to include: (1) assessment of filter performance; (2) development of a filter profile; (3) identification and prioritization of factors limiting filter performance; and (4) corrective action plan to address the issue.
38. Low Pressure/Loss of Pressure Events. In the future event that Respondent experiences breaks in water lines or other low pressure or loss of pressure events likely to cause contamination in the System's distribution system, Respondent will take the following actions:
- a. Respondent shall consult with MSDH within 24 hours to determine if a BWN is required and provide notification to the EPA within 24 hours.
 - b. Respondent shall issue a Tier 1 public notice as required by 40 C.F.R. § 141.202.
 - c. Respondent shall immediately repair the line break or cause of the low pressure/loss of pressure. When satisfied that system pressure will be maintained and there is adequate chlorine residual, Respondent shall begin sampling from the affected area as described below. MSDH typically recommends a free chlorine residual of 0.5 mg/l at the ends of your distribution system.
 - d. Within 24 hours after making repair(s) to the water line(s) as required above, Respondent shall begin collecting special purpose samples (bacteriological and microbial) (defined in 40 C.F.R. § 141.21(a)(6)) from the System's distribution system. The chart, in Attachment I to this Order, lists the number of samples required based on the number of customers affected. If the entire system is placed on BWN, samples should be collected from sites representing the entire water system. Respondent shall ensure that each sample is analyzed for total coliform, *E. coli* (if the sample is total coliform positive), and chlorine residual. Respondent shall continue sampling until results from two consecutive rounds are total coliform negative.
39. Alternative Water Source Plan Development and Implementation.
- a. Within 14 days of the Effective Date of this Order, Respondent shall develop, and submit to the EPA for review and approval, an Alternative Water Source Plan ("AWSP"). In the AWSP, Respondent shall detail how and where it will provide at least one gallon of potable water per day, per person to every person served by the System. This allotment of alternative water must be made available at no cost to every person served by the System, as needed for drinking, cooking, maintaining oral hygiene, and dish washing. The AWSP will also outline how Respondent will inform every person served by the System of when and how an alternative water source is made available. As part of its AWSP, Respondent may opt to provide an alternate water supply that is: (1) provided by a licensed water distributor; (2) purchased bottle water; or (3) provided by another public water system that meets the requirements of

the NPDWRs. *Note:* If the AWSP trigger is localized to a specific portion of the distribution system and the entire system is not impacted, Respondent may opt to only serve alternative water to the portion of the population impacted. In order to consider this approach, the AWSP must include a detailed map of the System.

- b. The alternative source of water provided shall meet all applicable SDWA requirements at 40 C.F.R. § 141. If bottled water will be used by Respondent as an alternative water in accordance with this Order, Respondent must ensure that the bottled water is certified by the International Bottled Water Association or National Sanitation Foundation International.
- c. AWSP Implementation Triggers.
 - i. If, based upon Respondent's Revised Total Coliform Rule ("RTCR") sampling data collected in accordance with 40 C.F.R. § 141.857 and as outlined in Paragraph 41 below, the PWS exceeds 5.0% total coliform-positive samples in any monthly period during the term of this Order, Respondent shall comply with the "Level 1" assessment requirements of the RTCR at 40 C.F.R. § 141.859(b). In addition, Respondent shall begin implementation of the AWSP within 24 hours of receiving such sampling results. Respondent shall continue implementing the AWSP until the EPA provides written notification to Respondent that AWSP implementation is no longer required; or
 - ii. Within 24 hours of Respondent's collection of daily special purpose samples required under Paragraphs 37 and 38 above, Respondent shall begin implementation of the AWSP. Respondent shall continue implementing the AWSP until all daily special purpose sample results are total coliform negative. *Note:* The AWSP may consider, in certain situations, that only a portion of the population is impacted by the triggering event and therefore alternative water only needs to be provided to those impacted. See requirements under Paragraph 39(a) above.

Notifications and Reporting

- 40. Within 72 hours of the Effective Date of this Order, Respondent shall provide the February 2020 MORs, including the IFE data for all conventional filters at both the O.B. Curtis and J.H. Fewell WTPs during this timeframe.
- 41. Sample Siting Plan.
 - a. Within one week of the Effective Date of this Order, Respondent shall review its current Sample Siting Plan developed pursuant to 40 C.F.R. § 141.853, to ensure consistency with the RTCR, at 40 C.F.R. Part 141, subpart Y, and simultaneously provide a copy of the current Sample Siting Plan to the EPA for the EPA's concurrent review.
 - b. If the current Sample Siting Plan does not include a minimum of 120 sampling locations per month as required under 40 C.F.R. § 141.857(b), Respondent shall update the Sample Siting Plan to achieve the required minimum monitoring frequency for the monthly monitoring period after the Effective Date of this Order.